

S/130/61/000/001/003/006
A006/A001

AUTHORS: Yudin, M. I., Chief of the Cold Rolling Shop, Troshchenkov, N. A.,
Chief of the Rolling Group TsZL

TITLE: Stainless Steel Ground Plates

PERIODICAL: Metallurg, 1961, No. 1, 1961, pp. 21-23

TEXT: In connection with the development of polished plastic articles, manufactured by pressing, the demand of polished and ground stainless steel backing plates is continuously increasing. The production of ground stainless steel plates was started at "Zaporozhstal" in 1957, using the ШПМ-1500 (ShPM-1500) grinding machines. The authors together with M. M. Stekachev, L. A. Zagadchenko and G. A. Drobot investigated the effect of individual technological parameters on the surface of the finished plates and revealed deficiencies in the design of the aforementioned machine. Heat treated, etched 1X18H9T (1Kh18N9T), 1X18H9 (1Kh18N9) and 2X18H9 (2Kh18N9) steel sheets, and quenched and etched cold-worked 1Kh18N9T steel blanks were used. Since the quality of the ground plates depends on the surface conditions of the blanks, measures were taken to improve the quality of the blank surface. For this purpose water glass used as a binding material on abrasive

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belts was replaced by hide glue and the following optimum conditions for grinding the plates were established: 1) rough grinding with 100 mesh abrasive material; 2) pre-finishing grinding with 150 mesh abrasive and 3) finishing grinding with 180 mesh abrasive powder. Electrocorundum was found to be the best abrasive material. The abrasive powder was applied to the belt by a special device consisting of a sheet metal container with four rolls - two for tightening the belt and two for applying and levelling the abrasive material. The ShPM-1500 belt-type machine consists of a feed and a grinding mechanism. The sheet to be ground is sucked on to a perforated feed belt by a vacuum pump retaining the work on the belt during its processing with the abrasive belt. The feed belt moves at a speed of 3.2 - 11 m/min. The grinding mechanism consists of three rolls onto which an endless 1 mm thick, 1300 mm wide abrasive belt is fastened. The abrasive belt moves at a speed of 10 m/sec. The belt is pressed against the work piece with four 100-mm diameter steel rolls. The grinding operation can be switched over to the vertical direction. Experience gathered in the production of stainless steel ground plates by the aforementioned method has led to the following conclusions. 1. The quality of finished plates depends in the first place on the quality of cold and hot rolled blanks. There should not be any visible defects on the blank surface, since their elimination would require the removal of a thick metal layer. This would extend

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the grinding process and impair the quality of the ground surface. 2. The existing method of applying the abrasive material and the glue to the belt by manual pulverization does not assure a uniform covering of the belt with the material on its whole length and width. Therefore mechanical processes of applying the abrasive powder should be developed. 3. The rubberized transportation belts do not yield satisfactory results due to different thickness across their section (2 - 4 mm at a 12-mm thick belt); non-admissible expansion during operation (up to 10%); cracking and scaling of the upper coating. 4. The endless woolen abrasive belts produce considerable non-uniform longitudinal stretching (up to 15%) causing cracking of the abrasive coating and breakdown of the belt. Inclusions of foreign material in the belts produce scratchings on the surface to be ground. 5. The grinding machine described has a series of deficiencies and cannot be recommended for the grinding of large size sheets. Designs of machines should be developed for the grinding of sheets on both sides by taking into account domestic and foreign experiences. 6. Large scale production of ground plates should be performed in special shops, starting with cold rolling of blanks. There are 3 figures. ✓

ASSOCIATION: Zaporozhstal' Plant

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KSENZUK, F.A., inzh.; MIRENSKIY, Yu.M., inzh.; TROSHCHENKOV, N.A., inzh.

Changes in steel properties depending on the degree of
reduction during coil straightening. Stal' 24 no.1:56-58
Ja '64. (MIRA 17:2)

1. Zavod "Zaporozhstal'".

YUDIN, M.I.; KOMANOVSKIY, A.Z.; TROSHCHENKOV, N.A.

Redesign of the 1618 continuous cold rolling mill. Metallurg 8
no.11:28-29 N '63. (MIRA 16:12)

KSENZYK, F.A., inzh.; TROSHCHENKOV, N.A., inzh.

Reasons of blister formation on cold-rolled 08kp steel sheets.
Stal' 21 no.3:274-276 Mr '61. (MIRA 14:6)

1. Zavod "Zaporozhstal'."
(Sheet steel--Defects)

S/133/61/000/003/013/014
A054/A033

AUTHORS: Ksenzuk, F. A., Engineer; Troshchenkov, N. A., Engineer

TITLE: The causes of blister formation on 08km (08kp) cold-rolled steel sheets

PERIODICAL: Stal', no. 3, 1961, 274 - 276

TEXT: There are many rejects among the cold rolled 08kp steel sheets principally used for gasoline containers and car bodies, on account of blister formation. The blisters (1 - 5 mm wide, 2 - 50 mm long) are as a rule found after annealing on the surface, in the sheet centre 200 - 250 mm from the edges. Upon studying the microstructure of 164 specimens from 19 heats it was established that blisters mainly form in those parts of the sheets which contain a large quantity of non-metallic (siliceous) inclusions and especially, when these inclusions are near the surface. According to Ref. 1 (G. K. L'vov: Metallographic Principles of Producing Thin Steel Sheets, Khar'kov-Moscow, Metallurgizdat, 1949) and Ref. 2 (E. Gudremon: Theory of Special Steels, ONTI, 1937) blisters are caused by the hydrogen diffusion in iron during pickling. Therefore the effect of the pickling

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The causes of blister formation

time on hot rolled strips before cold rolling, as well as the casting technology in general were investigated. The pickling assembly used in the tests consisted of four sulfuric acid baths with a concentration of 18, 18, 12 and 9 %, respectively. The pickling speed varied between 40 m/min and 10 m/min. At max. pickling speed holding time in bath 1.8 min and at min. pickling speed holding time in bath 7.2 min. the following results were obtained:

Heats	$\frac{3773}{3923}$	61079	4929	101144	51046
Sheets rejected on account of blisters, %	$\frac{11.9}{0.0}$	$\frac{0.0}{0.0}$	$\frac{2.1}{0.0}$	$\frac{10.0}{0.6}$	$\frac{1.6}{2.8}$

The tests show that neither the composition, nor the temperature of the bath affected blister formation, only the speed at which the strip passed through the bath, (at top speed about 9 times more blisters were formed than at low speed). However, blister formation cannot be eliminated entirely, even at low pickling speeds. In order to determine the effect of the pouring technology on the formation of non-metallic impurities and, consequently, of blisters, the method and the rate of casting were closely

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followed. In the tests the metal was additionally impurified by chamotte powder or by not removing the slag. The greatest amount of blisters was found in sheets rolled from the lower part of slabs, made from bottom-poured metal. It is supposed that with bottom poured metal the lower part of the ingot is contaminated by impurities consisting of refractory material that has been dislodged and carried along, and of substances used in assembling the bottom board. When the pouring speed was increased, for instance by pouring two molds at the same time, blister formation was somewhat lower. In sheets from slabs produced by top-pouring the amount of siliceous inclusions and consequently blister formation was considerably less. As a result of the tests, refractory material of the highest quality should be used when casting low-carbon rimmed steel, which has to comply with particularly high standards, and the assembly of the bottom board has to be subjected to a very severe control. In this way blister formation could be reduced to a minimum. In the tests I. S. Marakhovskiy, I. L. Zlatkin, A. I. Marinov, A. I. Koshik, V. N. Lola, L. A. Zagadchenko, Engineers participated. There are 2 figures and 3 Soviet references. ✓

ASSOCIATION: Zavod "Zaporozhstal'" ("Zaporozhstal'" Plant)

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A054/A027

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AUTHORS: Filonov, V.A., Engineer, Yudin, M.I., Engineer, Troshchenkov, N.A., Engineer, and Movshovits, V.S., Engineer

TITLE: Improved Production Process for Cold Rolled Alloy Steel Sheets

PERIODICAL: Stal', 1960, No. 12, pp. 1116-1118

TEXT: Until recently the production of the alloyed steel sheets, 0.5-3.0 mm thick, in the Zaporozhstal' Plant was divided into 8 stages. The technology had certain drawbacks: because the sheets had to be moved about a great deal during processing, their surface defects were numerous: 16.6-25.1% were defective, moreover, it was not possible to obtain the required mechanical properties. About 30% of the sheets had to be rejected because the strength limit was too low. In order to simplify and at the same time to improve this process, cold rolling tests were made with 12Г2А (12G2A), 25ХГСА (25KhGSA), 30ХГСА (30KhGSA) and other steel sheets, 0.8-3.0 mm thick, omitting bright annealing, i.e., the second phase of the conventional production process. The tests were carried out on a 1,680 mm stand, at a maximum rolling speed of 3.95 m/sec and it was found that the 12G2A steel sheets, 0.8-3.0 mm thick and 730-1,270 mm wide could easily be rolled in 3-7 passes. The cold rolling of 25KhGSA and 30KhGSA steel sheets without bright annealing was only possible up to 1.2-3.0 mm thickness, irrespective of the strip width, with normal metal

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pressure at the rollers and with normal load on the main motor. Omitting bright annealing decreased rolling waste 2.2 times for the 12G2A and 3.2 times for the 25KhGSA and 30 KhGSA brand steels. Furthermore, tests were carried out with cold rolling steel sheets (12G2A) containing manganese up to 0.5 mm thickness, without bright annealing and intermittent annealing, on a 4-high reversible mill stand (1,200 mm) and it was established that by applying this technology wastage could be reduced 3.3 times as compared with the conventional method, while the metal pressure on the rollers was kept within the limits allowed (1,800 t) and by applying hydrogenated sunflower seed oil as a lubricator, the main motor load could be reduced. Maximum rolling speed attained 6.7 m/sec. Tests were also carried out to improve the annealing of hot rolled sheet coils of 23 X 2H8ΦA (23Kh2NVFA), 17 X 2H8ΦA (17Kh2NVFA), 12 X 2H8ΦA (12Kh2NVFA), 25XГCA (25KhGSA) and 30XГCA (30KhGSA) steels and it was established that optimum conditions can be obtained by annealing unpickled sheet coils in a protecting atmosphere of nitrogen, containing not more than 0.5% CO₂, 4-6% CO and 4-6% H₂. Annealing takes place in this protecting atmosphere at 850°C for periods of 16, 18, 20 hours, depending on the weight of the charge, (1 ≤ 6, 7-8, 9-10 coils, respectively). By annealing in protective atmosphere it was possible

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to prevent decarbonization and to increase the output of the pickling equipment considerably by setting free great part of its capacity. Further improvement in the quality of cold rolled 12G2A steel sheets could be attained by normalizing the sheets in coils, in electric hood-furnaces with ventilators. The heat conditions of the process were the same as when normalizing the sheets in small packets (heating up to 840-860°C, holding time: 1 hour, furnace temperature 900°C, cooling under muffle to 180°C); the improvement in mechanical properties was obtained by the special size and the construction of the furnace securing a uniform heating and cooling in the entire coil while waste due to inadequate mechanical properties could be eliminated. This waste had amounted to about 80% when normalizing in the conventional production process single packets. There is 1 table.

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Improved Production Process for Cold Rolled Alloy Steel Sheets

① Steel brand; ② Initial and final thickness of the strip mm; ③ Strip width mm; ④ Total reduction %; ⑤ Load on the main motor a; ⑥ Metal pressure on the roll ton; ⑦ Rolling speed m/sec; ⑧ Number of passes.

Марка стали 1	Исходная и конечная толщина полосы, мм 2	Ширина полосы мм. 3	Суммарное обжатие % 4	Нагрузка главного двигателя а 5	Давление металла на валки 6 ^т	Скорость прокатки м/сек 7	Количество пропусков 8
12Г2А	Реверсивный стан 1680						
	2,3—0,8	1270	65,1	1200—2830	1400—1700	1,17—3,44	7
		1020	65,1	800—3000	800—1100	1,57—3,52	5
	2,3—1,0	1270	56,5	1200—3000	1300—1700	1,57—3,71	5—7
		1020	56,5	1000—3400	900—1700	1,57—3,60	5—3
	2,3—1,2	1020	47,8	1000—3000	850—1500	0,78—3,52	
	2,7—1,5	1020	44,5	1600—2500	900—1100	1,76—3,52	
	3,2—2,0	1270	37,5	2000—3200	1200—1700	1,57—3,52	
	3,7—2,5	1270	32,4	2000—3000	1400	2,54—3,14	3
	4,0—3,0	1270	25,0	2000—3000	1400—1600	2,34—3,14	
		730	25,0	2000—2500	900—1100	2,34—3,14	

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25XГСА	2,3—1,0	1020	56,5	800—2000	1200—2000	0,78—2,74	7	
	2,7—1,5	1020	44,5	800—3000	1200—1800	0,78—3,14	3	
	3,0—1,8	1020	40,0	800—1600	1200—1500	0,78—3,14	5	
	3,2—2,0	1120	37,5	2000—2800	1300—1800	1,17—2,35	3	
	3,7—2,5	1290	32,4	800—1600	1300—1800	0,62—1,95	7	
		900—1020	32,4	800—2000	1050—1600	0,78—2,34	3	
	4,0—3,0	1020	25,0	800—2000	1100—1500	0,75—3,14	3	
	2,3—1,0	1020	56,5	400—1600	1300—2000	0,78—1,76	9—11	
	2,5—1,2	1020	52,0	2000—3500	1300—1800	0,78—2,74	3	
	2,7—1,5	1270	44,5	1000—3000	1000—1800	0,78—3,14	5—3	
30XГСА	3,0—1,8	730	44,5	1200—1600	1200—1300	0,78—1,57	3	
		1020	40,0	800—3000	800—1600	1,17—2,74	5	
	3,2—2,0	1270	37,5	1200—3500	900—2000	0,78—3,14	5—3	
		1020	37,5	400—3000	1200—2100	0,78—3,14	5—7	
	3,7—2,5	1270	32,4	800—2800	1100—1700	0,70—1,57	5	
		1020	32,4	400—3500	1100—1900	0,78—2,74	3—7	
	4,0—3,0	1270	25,0	800—3000	1300—2000	0,47—2,15	3—5	
	Реверсивный стан 1200							
	12Г2А	2,0—0,5	1020	75,0	1000—6000	900—1600	1,05—6,70	7
				1500—4500	900—1400	2,09—6,70	7	

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TROSHCHENKOV, N.A., inzh.; ZAGADCHENKO, L.A., inzh.

Changes in the mechanical properties of steel under the
effect of cold rolling. Stal' 20 no.8:735-738
Ag '60. (MIRA 13:7)

1. Zavcd "Zaporozhstal'."
(Steel--Cold working)

S/133/60/000/008/009/013

AUTHORS: Troshchenkov, N. A., Zagadchenko, L. A., Engineers
 TITLE: The Change in the Mechanical Properties of Steel During Cold Rolling ✓
 PERIODICAL: Stal', 1960, No. 8, pp. 735-738

TEXT: In order to investigate the changes in the mechanical properties and the hardness of steel as a function of the degree of deformation, cold-rolling tests were carried out with 08 кп (08kp), 10Г2 (10G2), 12Г2А (12G2A), 25Х1СА (25Kh1SA), 30ХГСА (30KhGSA), 12Х5МА (12Kh5MA), 3Х659 (EI659), 33(Е3), 1Х18Н9 (1Kh18N9), 1Х18Н9Т (1Kh18N9T) and 3Х811 (EI811) grade steels. Before rolling the strips were subjected to a softening heat treatment, while the 08kp and 10G2 type steels were processed immediately after hot rolling. For cold rolling a reversing, four-roll mill was used, the diameter of the working rolls being 480 mm, that of the backing-up rolls 1,370 mm and the length of the roll body 1,680 mm with a motor output of 2,250 HP. From each type of steel one coil was rolled, thus attaining for one coil various steps of deformation. The degree of deformation varied between 5-15% for one pass. For

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The Change in the Mechanical Properties of Steel During Cold Rolling

lubrication spindle oil, for cooling the rolls a 5-7% mineral emulsion were applied. For each degree of deformation four (two transverse and two along the rolling) specimens were tested, in accordance with GOST (GOST) 4197-42 and diagrams for the extensions were plotted. By analyzing the graphs representing the dependence of mechanical properties and the hardness in the stage of deformation, the following conclusions were drawn: 1) The strain hardening of the steel during cold rolling is not proportional to the stage of deformation. It is most effective in the beginning of deformation and becomes less pronounced as the deformation increases. 2) During cold forming the anisotropy of the steel properties increases, mainly for the EI811 type steel. 3) The relative elongation during cold rolling decreases disproportionately to the strain hardening of the steel. For all steels investigated it was found that after a deformation of 60% there is hardly any change in relative elongation. 4) The hardness of relatively plastic steels increases 1.2-2 times during cold rolling, whereas in less plastic steels, displaying a considerable hardness already before the rolling process, hardness increased only slightly. There are 2 sets of figures.

ASSOCIATION: Zavod "Zaporozhstal" (Zaporozhstal' Plant)

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KSENZUK, Feofan Andreyevich; TROSHCHENKOV, Nikolay Alekseyevich;
GOROBINCHENKO, V.M., red. izd-va; DOBUZHINSKAYA, L.V.,
tekhn. red.

[Rolling and finishing of stainless steel strips] Prokatka
i otdelka polosovoi nerzhavayushchei stali. Moskva, Metal-
lurgizdat, 1963. 205 p. (MIRA 16:7)
(Rolling (Metalwork)) (Steel, Stainless)

MANCHINSKIY, V.G.; TROSHENKOV, B.V.

Losses of gas pressure in a moving layer of materials. Trudy LPI
no.225:149-155 '64. (MIRA 17:9)

TROSHCHENKOV, N.A.; TILIK, V.T.; MOVSHOVICH, V.S.

Quality of the cut of strip edges. Metallurg 8 no.5:29
My '63. (MIRA 16:7)

1. Zaporozhskiy staleplavil'nyy zavod.
(Metal cutting--Quality control)

CA

Combating scale in evaporators. F. L. Trumbach.
Lehigh Trans. S. No. 11/12, 33-6(1937).--Prevention of
scale in evaporating assemblies is prevented by installing
between the heater and the separator columns of
either filter bodies or crushed stone, to take the place of
return pipes. Trials with stone-filled columns in various
ext. plants gave good results.
M. Hensch

TROSHCHENOVSKIY, A.F., Inzh.

Selecting optimum loading for vibratory mills. Stroi. i dor.
mash. 9 no.11:25-27 N '64 (NERA 18:4)

KARAYEV, M.A.; OSIPOV, R.G.; TROSHCHINSKAYA, S.S.

Results of splenopertography in the diagnosis of portal hypertension.
Azerb. med. zhur. 42 no.6:11-16 Je '65. (MIPA 18:9)

1. Iz kafedry fakul'tetskoy khiirurgii (zaveduyushchiy - prof. A.N. Tairov) pediatricheskogo i sanitarno-gigiyenicheskogo fakul'teta Azerbaydzhanskogo gosudarstvennogo meditsinskogo instituta im. N.Narimanova i 4-y klinicheskoy gorodskoy bol'nitsy g. Baku im. Fuada Efendiyeva (glavnyy vrach - A.Ya.Ismaylov).

TROSHEV, Totiu

Radioactive aerosols. Fiz mat spisanie BAN 6 no. 4:276-283 '63.

KARASEV, K.I., kand. khim.nauk; MAKOTINSKIY, M.P., kand. arkh.;
TROSHICHEV, V.M.; Primalni uchastiye: LUTSIK, L.D.,
inzh.; FEDOROVA, G.M., tekhnik; LIVSHITS, A.M., inzh.;
ANDREYEV, V.S., retsenzents; MIRENSKIY, B.R., inzh.,
retsenzents; GURVICH, E.A., red.izd-va; TEMKINA, Ye.L.,
tekhn. red.

[Catalog of finishing materials and products] Katalog ot-
delochnykh materialov i izdelii. Moskva, Gosstroizdat.
Pt.2. [Paints and lacquers] Kraski i laki. 1961. 76 p.
(MIRA 16:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh
stroitel'nykh materialov. 2. Chlen-korrespondent Akademii
stroitel'stva i arkhitektury SSSR (for Andreyev).
(Paint materials--Catalogs)

TROSHCHILOVA, G.G.

Osteopathy caused by syringomyelia. Vest.rent. i rad. 32 no.3:
98-100 My-Je '57. (MIRA 10:10)

1. Iz kafedry rentgenologii i radiologii (zav. - dotsent V.N. Shtern) Saratovskogo gosudarstvennogo meditsinskogo instituta (dir. - dotsent V.A.Nikitin).

(SYRINGOMYELIA, compl.

bone brittleness)

(BONEDISEASES, etiol. and pathogen.

brittleness caused by syringomyelia)

PALISHKIN, D.A.; IVANOV, V.I.; MAKARENKO, L.N.; GALAOV, K.K.;
TROSHCHIN, S.I.; KPISYUK, V.I.; STEPANOV, A.D.; SAZONOVA,
N.I.; KUZNETSOVA, M.P.; PISARENKO, G.H.; LOBKOV, M., red.

[Mechanization in animal husbandry] Mekhanizatsiia v zhi-
votnovodstve. Stavropol', Stavropol'skoe knizhnoe izd-vo,
1963. 287 p. (MIRA 17:8)

KIL'MAN, Ya.I., kand.tekhn.nauk; Prinimali uchastiye; BATOVA, G.S.;
TROSHCHINA, L.G.

Stabilization of the thermal decomposition of highly concentrated
ammonium nitrate melts. Khim.prom. no.1:66-69 Ja '62. (MIRA 15:1)

1. Gosudarstvennyy institut azotnoy promyshlennosti.
(Ammonium n'trate)

TROSHCHINSKIY, I.A., inzh.

Stand for determining the angle of static stability in
tractors. Mekh. i elek. sots. sel'khoz. 19 no.6:49-50
'61. (MIRA 14:12)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro
po sel'skokhozyaystvennoy tekhnike Sovnarkhoza Gruzinskoy SSR.
(Stability of tractors)

TROSHCHINSKIY, I.A.

Studying the dynamics of the 0.6t-class mountain tractor.
Trakt. i sel'khoz mash. 33 no.3:15-18 Mr '63.

(MIRA 16:11)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro
pc sel'skokhozyaystvennoy tekhnike.

TROSHCHINSKIY, I.A.

New design of steering mechanisms. Trakt.i sel'khoz mash. 31
no.9:10-12 S. '61. (MIRA 14:10)

1. Gosudarstvennoye spetsial'noye konstruktorskoye byuro
po chayu.

(Steering gear)

TROSHCHINSKIY, I.A., inzh.

Self-propelled DSSh-14 chassis. Mekh. i elek.sots.sel'khoz. no.5:
44-47 '56. (MIRA 12:4)

1. Gruzinskaya mashinoispytatel'naya stantsiya.
(Tractors)

TSYGANOV, M. S., prof., doktor sel'skokhozyaystvennykh nauk; TROSHCHIY, A.I.

Cutting slit furrows across slopes helps to increase grass yields.
Zemledelie 8 no.10:61-65 0 '60. (MIRA 13:10)

1. Voronezhskiy sel'skokhozyaystvennyy institut.
(Pastures and meadows) (Tillage)

ZAKHAROVA, T.A., dotsent; TROSHENKO, L.S., vrach

Occupational pathology in the production and use of polyvinyl chloride plastics. Trudy KGMI no.10:27-30 '63.

(MIRA 18:1)

1. Iz kafedry propedevtiki vnutrennikh bolezney (zav. kafedroy dotsent A.N.Kushnev), Kalininskogo gosudarstvennogo meditsinskogo instituta.

ca

Viscometer. D. P. Troshchinskii. Russ. 29,637, June 9, 1928. A viscometer consists of a number of pipets having capillaries of different diameters, a thermostat with an elec. thermoregulator, a vacuum for feeding the pipets, compressed-air device for displacing thick liquids from the pipets and gages for measuring the vacuum and the pressure.

TROSHENOK, P.I.

Hardboards made of spent tanbark. Kozh.obuv.prom. 3 no.4:35 Ap '61.
(MIRA 14:5)

1. Glavnyy inzhener Vol'skogo ekstraktovogo zavoda.
(Tanning materials)
(Hardboard)

4

CA

Improvement of the quality of low-voltage incandescent lamps by filling them with argon with a low nitrogen content. D. P. Troshenski. *Svetotekhnika* 1937, 57-60; *Chem. Zvesti* 1937, 11, 3210. The life of low-voltage W lamps filled with a mixt. of 97.8% A and 2.2% N instead of the ordinary mixt. of 84.7% A and 15.3% N is increased by 20-38% over that of the ordinary type, the amt. of illumination being the same in both cases. For the same life of the lamp, the amt. of light produced can be increased 3.5-7.6% by increasing the A used from 84.0% to 97.8%.

M. G. Moore

ASAC 11.4 METALLURGICAL LITERATURE CLASSIFICATION

11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

TROSHENSKIY, D.P., inzh.

Effect of the pressure of argon on the quality of incandescent
lamps. Svetotekhnika 8 no.7:6-10 JI '62. (MIRA 15:6)

1. Moskovskiy elektrolampovyy zavod.
(Electric lamps, Incandescent)

20857

S/O48/61/025/033/047/047
B104/B203

9.4120 (1003, 1105, 1140)

AUTHORS: Nilender, R. A. and Troshenskiy, D. P.

TITLE: Adaptation of luminophores as light sources

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, v. 25,
no. 3, 1961, 435-439

TEXT: This paper was read at the 9th Conference on Luminescence (Crystal Phosphors) in Kiyev, June 20-25, 1960. The development of tube luminophores was started in the Soviet Union 20 years ago. Under the direction of S. I. Vavilov, work was carried out at the laboratories of the Moskovskiy elektrolampovyy zavod (Moscow Plant of Electric Tubes) together with the Fizicheskii institut Akademii nauk (Institute of Physics of the Academy of Sciences) and the laboratories of the VEI. The first lumino-phore for tubes was cadmium silicate activated with manganese and magnesium tungstate. The Gosudarstvennyy opticheskiy institut (State Optical Institute) was also engaged in further investigations. The industrial production of a calcium halogen phosphate activated with antimony and manganese was started at the "Krasnyy khimik" ("Red Chemist") Plant. x

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S/O48/61/025/003/047/047
B104/B203

Adaptation of luminophores as...

Further improvement of this luminophore in 1955-60 is described, and its properties are pointed out. Thus, it is stated that antimony as a sensitizer acts in the trivalent state only. The best halogen phosphate luminophores are, in their structure, similar to apatite in which the calcium is replaced by antimony or manganese. Besides, the replacement of fluorine in this compound by chlorine produces a slight shift of the wavelengths emitted. Antimony forms luminescent centers in the apatite lattice. To prevent the occurrence of hydrosilicate, it is necessary to observe certain conditions in the apatite precipitation and optimum temperatures in the heat treatment. The optimum content of antimony lies at 0.7 - 0.8 %. If manganese is introduced and the fluorine/chlorine ratio is changed, the spectral composition of emission changes, but the stability of the luminophore is not affected. Further, it was found that 4.9 metal atoms should come to 3 phosphorus atoms to obtain maximum brightness and stability. On the basis of the above results, an improved halogen phosphate has been developed; it is being produced now and yields 10 % more light (with 40-w tubes, the light yield is 48-55 lumen per watt). Aging of tubes is connected with the destruction of antimony centers. Thus, reducing compounds cause, in the gas medium, a decrease in lumines-

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S/048/61/025/003/047/047
B104/B203

Adaptation of luminophores as...

cence of the luminophore by reduction of antimony which can be annulled by oxidation of the reduced antimony. This circumstance is considered in the production of tubes. Due to the production process, the brightness of the luminophore drops by 20-24 % in the finished tube as compared with its maximum brightness. Production methods have been developed with further treatment by weak hydrochloric acid solution after the heat treatment at 1100°C (15-30 min). Such treatment removes manganese oxides from the surface and produces a light yield of 95-97 % of the maximum possible yield. By a reduction of temperature and the use of protective layers it was possible to reduce the liberation of impurities introduced. By an improved vacuum treatment of the tubes and subsequent training of the cathodes with high-voltage discharges in Hg vapor, it was possible to reduce the drop in luminous intensity from 20-30 % to 10-14 % within 3000 hr. The 40-w tubes thus produced had a light yield of 60-62 lumen per watt. V. M. Skobelev, Ch. B. Lushchik, D. P. Troshenskiv, and T. A. Krasnova took part in the subsequent, extensive discussion taking reference to papers by V. L. Levshin, B. D. Ryzhikov, and V. I. Dolgopulov of the VNISI. There are 6 references: 1 Soviet-bloc and 4 non-Soviet-bloc.

Gard 3/3

TROSHENSKIY, S.P.; ZHDANOVICH, V.F., inzh.; retsenzent; GULYACHKIN,
K.M., inzh., red.

[Calculating the precision of machining on machine tools]
Raschety tochnosti obrabotki na metallorezhushchikh stan-
kakh. Moskva, Izd-vo "Mashinostroenie," 1964. 202 p.
(MIRA 17:7)

TRUSHEVICH, G. I., Engineer

Law 1222 001

Dissertation: "Influence of the Rigidity of Circular Grinding Machines on the Accuracy of Machinery."

15/11/50

Moscow Machine Tool Institute imeni L. V. Stalin

SO Vecheryaya Moskva
Sum 71

TROSHENSKIY, S.P.

[Precision in grinding-machine work] Technost' obrabotki na shli-
foval'nykh stankakh. Moskva, Gos. nauchno-tekh. izd-vo mashino-
stroit. i sudostroit. lit-ry, 1953. 123 p. (MIRA 6:12)
(Grinding and polishing)

TROSHEV, A. I.

NOVIKOV, M.P., A.V. SIVAI, and A.I. TROSHEV

Montazh aviatsionnykh dvigatelei. Montazhnye prispособleniia. Moskva, Oberongiz, 1947. 268 p.

Title tr.: Assembly of aircraft engines and equipment.

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955

TROSHEV, A.I.

Sborka aviatsionnykh dvigatelei. Moskva, Oborongiz, 1943. 175 p., illus.

Title tr.: Assembly of aircraft engines.

TL701.1.T7

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

NOVIKOV, M.P.; SIVAY, A.V.; ~~TROSHEV~~, A.I.; YERUKHIMOVICH, TS.M., ZU-
DAKIN, I.M., tekhnicheskiiy redaktor.

[Installation of airplane engines; tools] Montazh aviatsionnykh
dvigatelei; montazhnye prispособleniia. Moskva, Oporongiz, glavnaia
redaktsiia aviatsionnoi lit-ry, 1947. 267 p. (MIRA 8:2)
(Airplanes--Engines)

TROSHEV, M.A., master

We are headed for communism. Metallurg 7 no.7:33-34 J1 '62.
(MIRA 15:7)

1. Nikopol'skiy yuzhnotrubnyy zavod.
(Pipe mills)

TROSHEV, Nikolay Ivanovich

[Development and distribution of productive forces of the RSFSR from 1959 to 1965] Razvitie i razmeshchenie proizvoditel'nykh sil RSFSR v 1959-1965 godakh. Moskva, Ob-vo po rasprostraneniu polit. i nauchn. znani RSFSR, 1959. 38 p.
(MIRA 16:1)

(Russia—Economic policy) (Industries, Location of)

TROSHOV, N. I. --

"Problems of the Geographical Distribution of Socialist Industry." Cand Geog Sci, Inst of Geography, Acad Sci USSR, 22 Oct 54. (VI, 22 Oct 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (10)

SO: Sum. No. 481, 5 May 55

TROSHEV, Nikolay Ivanovich, kand. geogr. nauk; TIKHOMIROV, V.N.,
red.; NAZAROVA, A.S., tekhn. red.

[What changes take place on the map of our economy]Kak me-
niaetsia karta nashei ekonomiki. Moskva, Izd-vo "Znanie,"
1962. 34 p. (Novoe v zhizni, nauke, tekhnike. XII Seria:
Geologiya i geografiia, no.12) (MIRA 15:9)
(Russia--Economic policy)

TROSEV, Nikolay Ivanovich; KOMAROV, Ye.I., red.; PONOMAREVA, A.A.,
tekhn.red.

[Planning the distribution of industry in the U.S.S.R.] Plani-
rovanie razmeshcheniia promyshlennosti v SSSR. Moskva, Gosplanizdat,
1960. 125 p. (MIRA 13:11)
(Industries, Location of)

MISHEV, I.T.; RADICHEVA, M.A.; TROSHEV, T.M.

Study on radioactive contamination about the IRT-1000 nuclear reactor. Atom.energ. 16 no. 4:344-348 Ap '64. (MIRA 17:5)

1. Fizicheskiy institut Bolgarskoy Akademii nauk, Sofiya.

SOV/137-58-11-21934

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 11, p 14 (USSR)

AUTHOR: Troshichev, A. D.

TITLE: Measuring Surface Temperatures of Steel Ingots and Forgings
(Izmereniye temperatury poverkhnostey stal'nykh slitkov i pokovok)

PERIODICAL: Tr. Nevsk. mashinostroit. z-da, 1957, Nr 2, pp 88-93

ABSTRACT: A description is offered of the designs of 3 types of contact thermocouples (T) employed at the Nevskiy Machinery Plant for measuring surface temperatures of ingots, forgings, and various parts. The chromel-alumel T designed for measuring temperature in the 30-600°C range has an asbestos-cement head carrying the hot junction (HJ) fastened to the T protection tube by a spring. This permits the head to be deflected several degrees in either direction, thereby making for unbroken contact between the HJ and the surface the temperature of which is being measured. Steady readings are obtained when the HJ is brought into contact with the surface for 10-25 sec. The accuracy of the measurements, after correction for the temperature of the free ends of the T and for heat loss into the environment, comes to $\pm 10^{\circ}\text{C}$. Another T, designed for low lag and provided with

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SOV/137-58-11-21934

Measuring Surface Temperatures of Steel Ingots and Forgings

its own preheating, is designed for measuring temperatures in the 30-1200° interval. It consists of two electrode wires (chromel-alumel or Pt-Pt/Rh) in a single protection tube, connected as usual with a galvanometer, and of two nichrome or Pt conductors for the electric heater (H). Before a measurement is taken, the HJ is warmed up by the H to the presumed temperature of the surface being measured, whereupon the two are brought into contact. The deflection of the galvanometer pointer defines the number of degrees by which the real surface temperature is above or below that of the preheated HJ. Measurement is accurate to within $\pm 10^\circ$. The lag of this T is merely a fraction of a second. A bayonet-mounted T, used to determine the temperature of turbine blades, consists of a copel wire element in contact with the surface of the blade, the material of which (Nr 2Kh13 steel) serves as the other electrode. This T has a lag of 1 to 3 sec, but emits little heat to the ambient medium.

I. G.

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SOV/137-58-10-21756

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 185 (USSR)

AUTHOR: Troshichev, A. D.

TITLE: High-temperature Furnace for Calibrating Tungsten-molybdenum Thermocouples (Vysokotemperaturnaya pech' dlya graduirovaniya volfram-molibdenovykh termopar)

PERIODICAL: Tr. Nevsk. mashinostroit. z-da, 1957, Nr 2, pp 94-98

ABSTRACT: A description of a rapid method and equipment for calibrating W-Mo thermocouples in the 30-1650°C temperature range and also of a method for the control of nonhomogeneity of wire. The furnace consists of a hermetically sealed steel cylinder 100 - 120 mm in diameter in which two corundum tubes (T), one inserted into the other, are located. The space between the cylinder and the T is filled with crushed corundum or quartz sand. Previously purified Ar under a pressure of 2 - 5 mm water column is introduced through one end of the furnace; at the other end the heater terminals and the openings for the thermocouples are located. A heater consisting of Mo wire 0.46 - 0.50 mm in diameter (10 - 12 coils) is placed between the T. The ends of the standard thermocouple and the thermocouple being calibrated

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SOV/137-58-10-21756

High-temperature Furnace for Calibrating (cont.)

are welded together and placed into the inner corundum T. The temperature is increased at a rate of 100 degrees/min. At that rate of heating with short holding periods at certain temperatures the calibration requires 30 - 35 min. On comparison the results of calibration by this method agree well with the TsNIITMash (Central Scientific Research Institute of Technology and Machinery) method. To determine the homogeneity of the W and Mo wire, specimens 1 mm long are cut from both ends of each skein and W-W and Mo-Mo thermocouples are prepared. These are placed into the furnace which is kept at a constant 700° temperature. When the material is entirely homogeneous, the thermoe.mf of these thermocouples equals zero.

1. Furnaces---Design 2. Thermocouples---Calibration 3. Tungsten wire Z. F.
---Test methods 4. Molybdenum wire---Test methods

Card 2/2

ACC NR: AT6034611 SOURCE CODE: UR/3148/66/000/008/0063/0081

AUTHOR: Bazarzhapov, A. D.; Mishin, V. M.; Nemtsova, E. I.; Troshichev, O. A.

ORG: none

TITLE: Diurnal rate of magnetic activity during the IGY

SOURCE: AN SSSR. Mezhdunarodnyy geofizicheskiy komitet. III razdel programmy MQG (Geomagnetizm i zemnyye toki). Sbornik statey, no. 8, 1966. Geomagnitnyye issledovaniya (Geomagnetic research), 63-81

TOPIC TAGS: magnetic activity, geomagnetic index, current system, magnetic field, solar zenithal distance, universal time ~~component~~, local time component, auroral zone, *GEOMAGNETISM*, geomagnetic disturbance

ABSTRACT: The diurnal rate of geomagnetic activity on perturbed days in 1957—1959 is studied using geomagnetic indices K of 92 observatories which followed the program of the IGY. The study is limited to the diurnal wave of geomagnetic variations and related to local time and universal time. Analysis of the diurnal wave of magnetic variations yielded the following results: 1) The first harmonic of the diurnal wave of equivalent amplitudes of magnetic activity on perturbed

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ACC NR: AT6034611

days is of the fundamental value. 2) Diurnal variations of magnetic activity can be related to both local and universal time. The component of universal time plays an important role in geomagnetic activity of perturbed days at all latitudes. 3) Variations of the component of local time by latitude and season can be represented as a superposition of two waves with maxima at noon and midnight. Phases of these waves do not change with latitude. These waves are analogous to the current system of a disturbed magnetic field. The error amplitude of the local time component attains a maximum at two geomagnetic zones: $\phi = 63^\circ - 67^\circ$ and $\phi \approx 78^\circ$. 4) The superposed waves are physically different. The level of disturbances is proportional to the square root of the cosine of the zenithal distance of the sun. The wave with a maximum at noon is predominant in equatorial and polar regions, and the wave with a maximum at midnight is predominant in the zone $\phi = 63^\circ - 67^\circ$. 5) The component of the universal time of variations consists of two parts, the symmetric and asymmetric, which differ from each other physically. The asymmetric part of the universal time component changes in phase by π in the transition from winter to summer of all latitudes. The error amplitude of the asymmetric part changes with latitude. The amplitude is near zero at middle latitudes and increases toward the auroral zone, being maximum at $\phi = 78^\circ$. The phase of the symmetric part of the universal time component is constant during the year, and the error

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ACC NR: AT6034611

amplitude of this part varies with the latitude like the change of the current system of the disturbed field. 6) The asymmetric part of the universal time component characterizes the magnetic activity during the rotation of the geomagnetic dipole and the distribution of the ionospheric conductivity. The symmetric part characterizes the dependence of the current system upon the eccentric rotation of the dipole. The authors thank V. S. Chesnokova for her help. Orig. art. has: 2 tables, 9 figures, and 32 formulas.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 024/ OTH REF: 009

Card 3/3

ACC NR: AT6034612 SOURCE CODE: UR/3148/66/0007008/0082/0088

AUTHOR: Troshichev, O. A.

ORG: none

TITLE: Diurnal rate of magnetic activity during the IGY period
(quiet days)

SOURCE: AN SSSR. Mezhdunarodnyy geofizicheskiy komitet. III
razdel programmy MGG (Geomagnetizm i zemnyye toki). Sbornik statey,
no. 8, 1966. Geomagnitnyye issledovaniya (Geomagnetic research),
82-88

TOPIC TAGS: geomagnetic activity, equivalent amplitude, harmonic
analysis, corpuscular stream, ionospheric conductivity, geomagnetism,
geomagnetic index, geomagnetic latitude, geomagnetic disturbance

ABSTRACT: The diurnal rate of changes in geomagnetic activity on
quiet days during the IGY is discussed. Data of the geomagnetic
K-indices taken from 92 stations were used and were transformed into
equivalent amplitudes R. Harmonic analysis of equivalent amplitudes
showed that the first harmonic was predominant in the diurnal rate for
the majority of stations in all seasons. The diurnal rate of magnetic
activity was divided for local and universal time. In the vicinity of
the outer zone of maximum of magnetic activity ($\phi = 60^\circ - 70^\circ$), the

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ACC NR: AT6034612

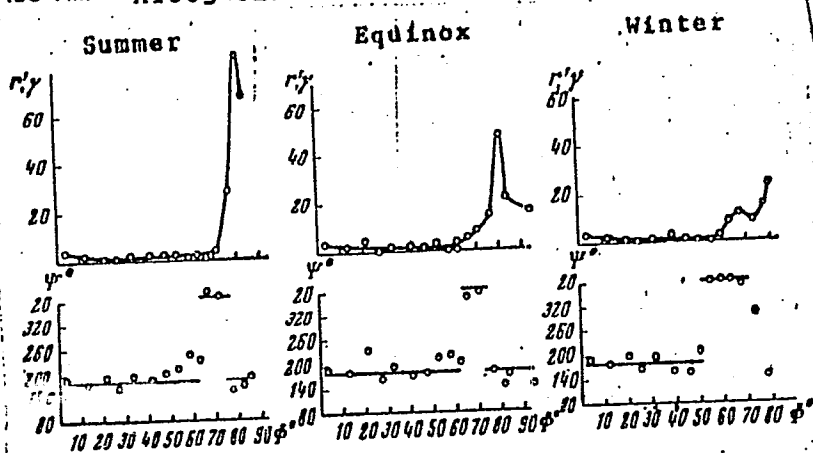


Fig. 1. Dependence of r' and γ upon ϕ .

local-time component of magnetic activity on quiet days is characterized by a wave with a midnight maximum. At all other latitudes, this component is characterized by a wave with a noon maximum. The component changes seasonally. The region with a predominant midnight wave increases and the amplitude of the wave is enlarged during the transition from summer to winter. The other wave with a noon maximum has increases from winter to summer. Fig. 1 shows the changes of r' and phase γ of the local-time component depending upon the geomagnetic

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ACC NR: AT6034612

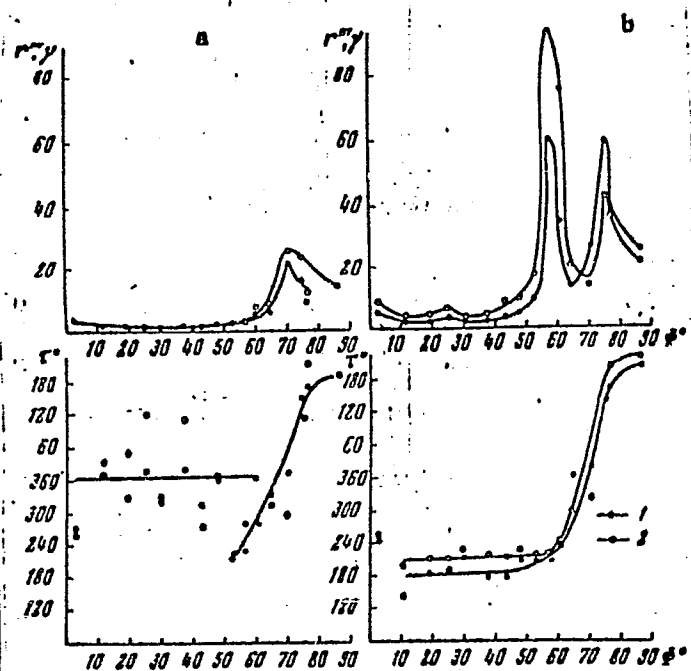


Fig. 2. Dependence of the amplitude r''' and phase r of the universal-time component upon the geomagnetic latitude on quiet (a) and disturbed (b) days.

1 - Winter and Summer;
2 - equinox.

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ACC NR: AT6034612

latitude. The diurnal disturbance decreases in the transition from disturbed to quiet days. In the middle latitudes the local-time component of the wave of magnetic activity with a noon maximum increases on passing from disturbed days to quiet days. Sharp changes in the amplitude of the nocturnal maximum of activity are caused by corpuscular streams interacting with the earth. The universal-time component of diurnal disturbances on disturbed days has symmetric and asymmetric aspects. Parameters of the symmetric part depend upon the latitude on both quiet and disturbed days. In the middle latitudes the time of maximum changes by π in the transition from disturbed to quiet days. In polar regions phases of the symmetric part are equal on quiet and disturbed days. Fig. 2 shows the state of magnetic activity in universal time. In the polar region changes in ionospheric conductivity influence the geomagnetic field, and the total vector of the geomagnetic field will be maximum at 0200 universal time. Orig. art. has: 3 figures and 1 table.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 008

Card 4/4

ACC NR: AT6034614 SOURCE CODE: UR/3148/66/000/008/0094/0101

AUTHOR: Mishin, V. M.; Troshichev, O. A.; Urbanovich, V. D.

ORG: none

TITLE: Distribution of magnetic activity at high latitudes

SOURCE: AN SSSR. Mezhdovedomstvennyy geofizicheskiy komitet. III razdel programmy MGQ (Geomagnetizm i zemnyye toki). Sbornik statey, no. 8, 1966. Geomagnitnyye issledovaniya (Geomagnetic research), 94-101

TOPIC TAGS: geomagnetic disturbance, magnetic activity, equivalent amplitude, local time component, universal time component

ABSTRACT: Magnetic disturbances change sharply and reach maxima in high latitudes. Initial data concerned with the equivalent amplitude and parameters of the local time component of the diurnal rate of magnetic activity have been taken from tables of earlier publications of the same authors. These data are taken from 23 stations of the Northern Hemisphere and 14 stations of the Southern Hemisphere. Magnetic activity was recorded during the IGY on quiet and disturbed days. The mean diurnal disturbances for each station were computed for local summer, winter, and the equinoxes. When the latitudinal distribution of the universal-time component is known, the mean value of the

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ACC NR: AT6034614

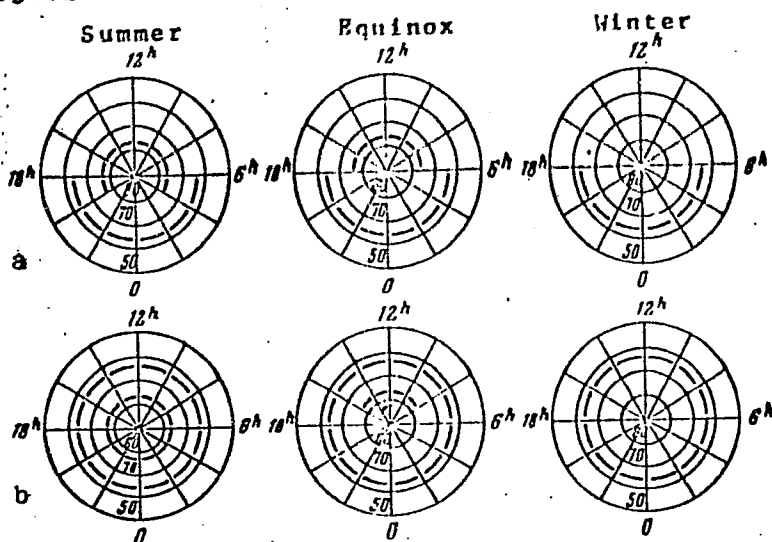


Fig. 1. Positions of latitude zones with maximum magnetic activity in 1954—1959.

a) - Quiet days; b) - disturbed days.

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ACC NRI AT6034614

equivalent amplitude can be computed using appropriate formulas. The maximum of the mean diurnal activity on disturbed days in summer occurs between the 63rd and 65th and near the 78th parallels. During winter and the equinoxes the maximum appears in the lower latitudes. No maximum appears at the 78th parallel. This distribution holds for the local-time component. The distribution of the maxima is shown in Fig. 1. On disturbed days the maximum activity in the first zone occurs at every hour of the day and night regardless of the season. In the second zone a sharp maximum appears in summer during daylight hours and a weak one in winter and the equinoxes. Both zones are divided by a wide zone of low activity. On quiet days in summer, the maximum activity is predominant in the second zone. Activity zones can be characterized in two ways: maxima distributed by latitude and by the diurnal rate of activity. The first results in annular zones and the second in spirals. Orig. art. has: 4 figures, 1 table, and 5 formulas.

SUB CODE: 08/ SUBM DATE: none/ ORIG REF: 012/ OTH REF: 002

Card 3/3

LATYPOVA, R.Kh.; MISHIN, V.M.; TROSHICHEV, O.A.; FEDCHENKO, Z.A.

Apropos of M.S. Bobrov's article "Overall planetary picture of geomagnetic disturbances of corpuscular origin." Geomag. i aer. 2 no.3:553-560 My-Je '62. (MIRA 15:11)

1. Institut zemnogo magnetizma, ionosfery i rasprostraneniya radiovoln Sibirskogo otdeleniya AN SSSR.
(Cosmic rays) (Magnetic storms)

L 42286-66

ACC NR: AP6022500

SOURCE CODE: UR/0054/66/000/001/0069/0074

AUTHOR: Trifonov, Ye. D.; Troshin, A. S.

ORG: none

TITLE: Phase operator for an oscillator

SOURCE: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 1, 1966, 69-74

TOPIC TAGS: quantum oscillator, electromagnetic field, photon

ABSTRACT: It has been proposed in the literature that the electromagnetic field may be described in terms of the photon annihilation operator $\hat{a}_{\vec{k},\lambda}$. The operator for the positive-frequency portion of the electric voltage of the field can, with the aid of the operator $\hat{a}_{\vec{k},\lambda}$, be represented in the form

$$\vec{E}^+(\vec{r}, t) = i \sum_{\vec{k}, \lambda} \left(\frac{1}{2} L^{-3} \hbar \omega_{\vec{k}} \right)^{\frac{1}{2}} \vec{e}_{\lambda}(\vec{k}) e^{i\vec{k} \cdot \vec{r}} e^{-i\omega_{\vec{k}} t} \hat{a}_{\vec{k}, \lambda}, \quad (1)$$

where L is one edge of the cube in which, according to the assumption, the field is enclosed; \vec{k} is the wave vector; λ is the polarization

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UDC: 530.145.6

L 42286-66

ACC NR: AP6022500

index; $\vec{e}_\lambda(\vec{k})$ is the unit polarization vector. The true values of the operator $\vec{E}^+(\vec{r}, t)$ can be represented, respectively, by the formula

$$\vec{E}^+(\vec{r}, t) = i \sum_{\vec{k}, \lambda} \left(\frac{1}{2} L^{-1} \hbar \omega_{\vec{k}} \right)^{\frac{1}{2}} \vec{e}_\lambda(\vec{k}) e^{i \vec{k} \cdot \vec{r}} e^{-i \omega_{\vec{k}} t} a_{\vec{k}, \lambda} \quad (2)$$

where $a_{\vec{k}, \lambda}$ is the true value of the operator $a_{\vec{k}, \lambda}$

$$a_{\vec{k}, \lambda} |a_{\vec{k}, \lambda}\rangle = a_{\vec{k}, \lambda} |a_{\vec{k}, \lambda}\rangle \quad (3)$$

The remainder of the article is given over to a mathematical development on the above basis. Orig. art. has: 34 formulas.

SUB CODE: 20/ SUBM DATE: 22Nov65/ ORIG REF: 007/ OTH REF: 013

Card 2/2

ACC NR: AT6036559

SOURCE CODE: UR/0000/66/000/000/0165/0166

AUTHOR: Yeremeyev, N. S.; Troshikhin, G. V.

ORG: none

TITLE: The problem of the effect of oxygen on the acetylcholinesterase activity level in the brain of animals [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 165-166

TOPIC TAGS: hyperoxia, central nervous system, drug effect, nervous activity, acetylcholinesterase

ABSTRACT: A study was made of the effect of chronic exposure to hyperoxic media with various pO_2 on cerebral acetylcholinesterase activity in CC 57 strain white mice (males) 3 mo old. Acetylcholinesterase activity was determined by continuous potentiometric titration at constant pH and temperature, and expressed in micromols (μmol) of acetylcholine hydrolyzed in 1 hr from a gram live weight of brain tissue.

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ACC NR: AT6036559

The animals were exposed for 1 month to atmospheres having pO_2 of 80%, 60%, and 40%, and for 5 days to an atmosphere with 60% oxygen. Controls were kept for similar periods in air.

The greatest brain acetylcholinesterase activity was found in the animals kept in the atmosphere with 80% oxygen ($1085 \pm 16.80 \mu\text{mol acetylcholine g/hr}$). In the animals exposed to the 60% oxygen atmosphere, activity was $1014 \pm 31.07 \mu\text{mol acetylcholine g/hr}$, which considerably exceeds that found in the controls ($871 \pm 16.86 \mu\text{mol acetylcholine g/hr}$). In the 5-day exposure to the 60% oxygen atmosphere, brain acetylcholinesterase activity was still comparatively high ($979 \pm 52.97 \mu\text{mol acetylcholine g/hr}$), but lower than in the 1-mo exposure. In the mice exposed to a 40% oxygen atmosphere, no statistically reliable difference between the experimental and control groups were observed.

It is concluded that increasing pO_2 in the respired air causes the level of brain acetylcholinesterase activity to increase, primarily owing to intensified sympathetic nervous system activity. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

ACC NR: AP7001830

(N)

SOURCE CODE: UR/0219/66/062/012/0046/0049

AUTHOR: Troshikhin, G. V.;

ORG: Institute of Physiology im. I. P. Pavlov/Director-Academician V. N. Chernigovsky/
AN SSSR, Leningrad (Institut fiziologii AN SSSR)TITLE: Effect of chronic exposure to a hyperoxic medium on the gas metabolism of
white miceSOURCE: Byulleten' eksperimental'noy biologii i meditsiny, v. 62, no. 12, 1966,
46-49

TOPIC TAGS: hyperoxia, animal experiment, respiration, biologic metabolism

ABSTRACT: The dynamics of gas metabolism during prolonged exposure of animals to a medium with an increased concentration of oxygen was studied. A total of 76 white mice of the CC 57W strain was placed in two hermetic chambers. One chamber contained a hyperoxic mixture; the other contained air (control). The chambers were connected to a closed air system regeneration; oxygen was released automatically by a gas meter in proportion to the animals' oxygen consumption. The temperature was maintained at 20—23C. The gas metabolism of the animals was determined in media with the following oxygen contents: I. 40% O₂ for 27 days; II. 60% O₂ for 39 days; III. 80% O₂ for 42 days; IV. 90% O₂ for 10 days. In the first series of experiments, animals showed a short period of increased O₂ consumption (three days), followed by a

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UDC: 612.275.014.49:612.22

ACC NR: AP7001830

return to normal. In the second series, there was a longer period of increased O_2 consumption (26 days) and then a gradual return to the normal level. The higher amount of O_2 consumption in both series of experiments was accompanied by increased CO_2 release. No differences were observed in weight between the control and experimental mice as a result of the tests. The third series caused a decrease in gas metabolism during the entire experiment, with an especially sharp decrease (27%) on the eighth to ninth days. The weight of the animals dropped by 20% after the end of the experiments: O_2 consumption did not return to normal for eight days after the experiments, even though weight had returned to normal. In the fourth series, there was a marked drop in gas metabolism from the first day, and by the fourth day it had decreased by 60% of original amount. On the seventh day mice began to die. Most deaths were accompanied by inflammation. In three survivors, oxygen consumption increased with resumed respiration of air and reached normal on the ninth day. Thus, in animals exposed to an 80% medium there was no mortality. However, sluggishness, adynamia, and decreased appetite were observed. A 90% concentration of O_2 was clearly toxic. Changes in gas metabolism in mice after a prolonged stay in hyperoxic conditions with various percentile contents of oxygen probably reflect, complex physiological changes in metabolic processes. [WNO2]

SUB CODE: 06/ SUBM DATE: 29Apr65/ ORIG REF: 008/ OTH REF: 005/

Card 2/2

ACC NR: AT6036562

SOURCE CODE: UR/0000/66/000/000/0171/0171

AUTHOR: Zhironkin, A. G.; Troshikin, G. V.

ORG: none

TITLE: Rate of formation of conditioned reflexes and oxygen absorption level in animals kept for long periods in an oxygen-enriched helium atmosphere [Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24 to 27 May 1966]

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 171

TOPIC TAGS: hyperoxia, helium oxygen atmosphere, conditioned reflex, biologic metabolism, central nervous system, mouse

ABSTRACT: Experiments are reported on the functional state of the CNS (Based on the rate of conditioned defense reflex formation and the level of gas metabolism) in 3 groups of mice exposed for 20 days to hyperoxic atmospheres of: a) 60% oxygen and 40% helium; b) 60% oxygen and 40% nitrogen; and c) 20% oxygen and 80% nitrogen (control). It was found that in hyperoxic atmospheres the rate of formation of conditioned reflexes was slower and motor reaction time longer than in air (control). Gas metabolism was more intense in both experimental groups.

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ACC NR: AT6036562

Conditioned reflex formation rate and motor reaction time was almost identical for the "helium" (a) and "nitrogen" (b) mice. However, the level of gas metabolism was noticeably greater in the "helium" group than in the "nitrogen" group.

It is suggested that slower formation of conditioned reflexes and retardation of motor reactions, as well as the higher level of gas metabolism in mice exposed for long periods to a hyperoxic helium atmosphere is related to the greater thermal conductivity of helium, which enhances cooling of the animals and displaces the thermal comfort zone. The specific effect of oxygen on CNS functions and metabolic processes is also a considerable factor contributing to these phenomena. [W.A. No. 22; ATD Report 66-116]

SUB CODE: 06 / SUBM DATE: 00May66

Card 2/2

L 08862-67 MFP(1) SGTB DD/GD

ACC NR: AT6036674

SOURCE CODE: UR/0000/66/000/000/0366/0367

AUTHOR: Troshikin, G. V. 21

ORG: none

TITLE: Effect of helium on conditioned reflex activity and gas metabolism in animals Paper presented at the Conference on Problems of Space Medicine held in Moscow from 24-27 May 1966

SOURCE: Konferentsiya po problemam kosmicheskoy meditsiny, 1966. Problemy kosmicheskoy meditsiny. (Problems of space medicine); materialy konferentsii, Moscow, 1966, 366-367

TOPIC TAGS: helium oxygen atmosphere, conditioned reflex, biologic respiration, mouse

ABSTRACT:

A study was made of the rate of conditioned defense reflex formation and gas metabolism dynamics in 40 adult male white mice exposed for 1 month to an atmosphere of 21% oxygen and 79% helium at temperatures of 21° to 23°C and 24° to 26°C. Controls were kept the same length of time in an air atmosphere.

It was found that conditioned reflex formation took longer in mice kept in a helium--oxygen mixture at 21° to 23°C. Conditioned reflexes

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L 08862-67

ACC NR: AT6036674

became established on the 19th day of the experiment in the "helium" mice as against the 8th day in the control mice.

Gas metabolism increased during the first 3 days of exposure to the helium atmosphere; oxygen utilization subsequently decreased but remained higher than in the control group. After the helium--oxygen atmosphere was replaced with air, oxygen utilization remained at the same level for the first 2 days, then returned to normal.

In a second series of experiments with a similar helium--oxygen atmosphere but a higher (24° to 26° C) temperature, conditioned reflex formation occurred almost simultaneously in both groups of animals ("helium" and "air"). There was likewise no difference in the level of oxygen utilization, although rectal temperature in the "helium" mice was slightly lower than in the "air" mice.

It was concluded that the longer conditioned reflex formation time and higher oxygen utilization in a helium--oxygen atmosphere is due mainly to more efficient cooling of the animals by helium, which is a considerably better heat conductor than nitrogen. [W.A. No. 22; ATD Report 66-116]

Cord 2/2 egk SUB CODE: 06 / SUBM DATE: 00May66

ZHIRONKIN, A.G.; BRESLAV, I.S.; KONZA, E.A.; NOZDRACHEV, A.D.; SALATSINSKAYA,
Ye.N.; TROSHIKHIN, G.V.; FEDOROVA, L.D.; SHMELEVA, A.M.

Effect of prolonged sojourn of animals in oxygen-enriched air
on some physiological functions. Probl. kosm. biol. 4:518-
530 '65. (MIRA 18:9)

BRESLAV, I.S.; ZHIRONKIN, A.G.; KONVA, E.A.; SALATSKINSKAYA, Ye.N.;
TROSHIKHIN, G.V.

Dynamics of gas exchange in white mice under increased partial
oxygen pressure. Fiziol. zhur. 49 no.5:643-647 My '63. (MIRA 17:11)

1. From the Pavlov Institute of Physiology, Leningrad.

TROSHICHEV, V. M.

TROSHICHEV, V. M. - Khudozhnik i, GROMOV, V. L. - Kand. Tekh. Nauk, POKHELES, E. L. - Arkh., PSHENICHNIKOVA, O. S. - Arkh., BUYANOV, Yu. P. - Inzh., BYKOVSKIY, O. L. - Arkh., BAYAR, O. G. (Rukovoditel'temy) - Kand. Arkhitektury, MAKOTINSKIY, M. P. - Kand. Arkhitektury, RABINOVICH, I. L. - Arkh., CHERIKOVER, L. Z. - Arkh., ANDREYEVSKIY, V. G. - Kand Tekhn. Nauk

Nauchnoissledovatel'skiy institut stroitel'noy tekhniki Akademii arkhitektury SSSR

Predlozheniya po oborudovaniyu i otdelke kvartir mnogoetazhnykh zhilykh domov v moskve (Al'bom) Page 67

SO: Collection of Annotations of Scientific Research Work on Construction,
completed in 1950. Moscow, 1951

TROSHIHINA, P. :

"Changing Rhythm of Respiration on the Ontogenesis of Animals." Tr. from the Russian, p. 84. (ANALELE ROMANO-SOVIETICE. SERIA PEDIATRIE. Series a III-a v, 6, no. 5; Sept./Oct. 1953, Bucuresti, Rumania.)

SO: Monthly List of East European Accessions, LC, Vol. 3, No. 4, April 1954

L 30083-66 EWT(1) SCTB DD

ACC NR: AP6019196

SOURCE CODE: UR/0238/66/012/003/0313/0320

AUTHOR: Troshykhin, H. B. — Troshikhin, G. V.

ORG: Laboratory of Respiratory Physiology, Institute of Physiology im. I. P. Pavlov,
AN SSSR, Leningrad (Laboratoriya fiziologii dykhaniya Instituta fiziologii AN SSSR)

TITLE: The effect of a hyperoxic medium on some physiological functions of the organism

SOURCE: Fiziologichnyy zhurnal, v. 12, no. 3, 1966, 313-320

TOPIC TAGS: hyperoxia, respiration, conditioned reflex, animal physiology, ~~oxygen~~ biologic metabolism

ABSTRACT: To determine the effect of a hyperoxic medium made up of various percentages of oxygen on animals, oxygen consumption and the process of positive, defensive reflex development in response to light were studied using white mice. Four series of experiments were conducted: the first involved exposure to 40% oxygen for 27 days, the second, to 60% oxygen for 39 days, the third, to 80% oxygen for 42 days, and the fourth, to 90% oxygen for 10 days. Animals in the first series showed a temporary increase in oxygen consumption followed by normalization and no shifts in conditioned reflex activity. Animals of the second series showed increased oxygen consumption while reflex development was slower. In the third series, oxygen metabolism and the development of conditioned reflexes were noticeably depressed.

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L 30083-66

ACC NR: AP6019196

Animals of the fourth series exhibited sharply decreased oxygen consumption, total elimination of reflex activity, and finally death. These shifts observed in oxygen metabolism apparently reflect altered tissue metabolism which affects the rate of conditioned reflex development. Orig. art. has: 1 table and 3 figures. [CD]

SUB CODE: 06/ SUBM DATE: 28Nov65/ ORIG REF: 019/ OTH REF: 009/ ATD PRESS 5012

Card 2/2 CC

L 32924-66 EWT(1) SCTB DD

ACC NR: AP6019494

SOURCE CODE: UR/0247/66/016/003/0538/0540

AUTHOR: Troshikhin, G. V.

ORG: Physiology Institute im. I. P. Pavlov, Academy of Sciences
SSSR (Institut fiziologii Adakemii nauk SSSR)

TITLE: Effect of a hyperoxic medium with normal atmospheric pressure on
the development of conditioned reflexes in rats

SOURCE: Zhurnal vysshey nervnoy deyatel'nosti, v. 16, no. 3, 1966,
538-540

TOPIC TAGS: animal experiment, hyperoxia, conditioned reflex, brain

ABSTRACT: Four series of experiments were staged on 76 adult white male mice of the CC57W line to determine the effects of different gaseous media on the time required to develop a conditioned reflex. In the first series animals were exposed to a medium containing 40% oxygen for 27 days. In the second series animals were exposed to a medium containing 60% oxygen for 39 days. In the third series animals were exposed to a medium containing 80% oxygen for 42 days. In the fourth series animals were exposed to a medium containing 90% oxygen for 10 days. Conditioned-reflex development started from the first day of exposure to a hyperoxic

UDC: 612.833.81+612.014.464

Card 1/2

L 32924-06

ACC NR: AP6019494

medium and control experiments were conducted simultaneously in chambers filled with air. The number of days required to develop a defensive conditioned reflex and motor-activity rate served as indexes. Findings for the first series (40% oxygen) show that the conditioned reflex was developed in the control group by the 8th day and in the experimental group by the 9th day. In the second series (60% oxygen) the conditioned reflex was developed in the control group by the 13th day and in the experimental group by the 22nd day. In the third series (80% oxygen) the conditioned reflex was developed in the control group by the 19th day and in the experimental group by the 31st day. In the fourth series (90% oxygen) the orientation reflex of animals was totally absent. The animals were unable to develop conditioned reflexes and began to die on the 7th day. On the basis of these data, it appears that increase of oxygen in air used for breathing exerts a toxic effect on the brain cells and inhibits the function of the central nervous system. Orig. art. has: 2 figures. [06]

SUB CODE: 06/ SUBM DATE: 20May65/ ORIG REF: 007/ ATD PRESS: 5027

Card 2/2

BRESLAV, I.S.; ZHIRONKIN, A.G.; IL'NITSKIY, A.M.; KONZA, E.A.;
MITYUSHOV, M.I.; NOZDRACHEV, A.D.; SALATSINSKAYA, Ye.N.;
TROSHIKHIN, G.V.; SHMELEVA, A.M.

Some data on the effect of a closed space on the physiological
functions in animals. Probl.kosm.biol. 2:291-302 '62.
(MIRA 16:4)

(SPACE MEDICINE)

L 44510-10 ENCL 1 515 10

ACC NR: AP6030662

SOURCE CODE: UR/0020/66/169/006/1480/1482

AUTHOR: Troshikhin, G. V.

ORG: Institute of Physiology im. I. P. Pavlov, Academy of Sciences SSSR (Institut fiziologii Akademii nauk SSSR)

TITLE: Some features of the gas exchange and conditioned-reflex activity of animals during prolonged exposure to a helium-oxygen medium

SOURCE: AN SSSR. Doklady, v. 169, no. 6, 1966, 1480-1482

TOPIC TAGS: animal physiology, animal experiment, respiratory system, life support system, helium oxygen atmosphere, biologic metabolism, conditioned reflex

ABSTRACT: Experiments were conducted on 80 CC57-strain mice in two hermetic chambers equipped with closed air-regeneration systems. Oxygen consumption was monitored by an automatic gas counter. One chamber was supplied with a 21%-O₂, 79%-He mixture while the other served as a control (normal air). It was possible to increase the temperature in the helium-oxygen system. Each chamber contained 40 mice. The makeup of the gaseous medium was monitored twice a day and O₂ content was found to be 18—22%, CO₂ -- 0.1—0.7%, and the nitrogen component of the helium-oxygen mixture -- 2.5—5.0%. Some result of data on the oxygen consumption of experimental and control animals is given in Figure 1. The data indicated that increased O₂ consumption, decreased body temperature, and increased time necessary for the formation of conditioned

Card 1/2

UDC: 591.121+591.513+591.128

L 44570-66

ACC NR: AP6030662

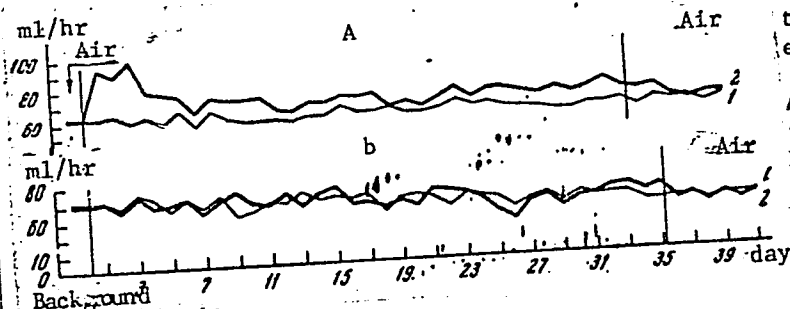


Fig. 1. Dynamics of O_2 consumption during the helium-oxygen experiment

A - When air and helium-oxygen temperature were the same;
B - when helium temperature was elevated; 1 - control; 2 - experimental.

reflexes occurred in the helium-oxygen atmosphere. This was caused by substantial heat loss and the difference between the thermal conductivity of helium and nitrogen. A two-week continuation of increased O_2 consumption after transfer from a helium-oxygen atmosphere to a normal one can apparently be explained by the inertia of metabolic, functional, reorganizational processes caused by prolonged cooling in the helium medium. Orig. art. has: 1 table and 1 figure. [CD]

SUB CODE: 06/ SUBM DATE: 17Jan66/ ORIG REF: 008/ OTH REF: 001/ ATD PRESS: 5079

Card 2/2 *2817*

L 16812-66 EWT(1) SCTB DD
ACC NR: AT6003887

SOURCE CODE: UR/2865/65/004/000/0518/0530

AUTHOR: Zhironkin, A. G.; Breslav, I. S.; Konza, E. A.; Nozdrachev, A. D.;
Salatsinskaya, Ye. N.; Troshikhin, G. V.; Fedorova, L. D.; Shmeleva, A. M.

45
B+1

ORG: none

TITLE: Effects of prolonged exposure to oxygen-enriched air on some physiological functions in animals

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 518-530

TOPIC TAGS: oxygen, hyperoxia, physiology, space medicine, closed ecology system

ABSTRACT: Experiments were performed on white mice kept 10 days in a closed system filled with air or a gaseous mixture containing 63% oxygen to determine the effects on some basic functions in relation to the length of exposure. The respiratory rate of the "oxygen" mice was noticeably slower than that of the control mice and their oxygen consumption was somewhat higher. Hyperoxia lowered thyroid function, changed hematological indices (decrease in hemoglobin concentration, number

2

Card 1/2

L 16812-66

ACC NR: AT6003887

of erythrocytes, reticulocytes, and lymphocytes), and adversely affected the central nervous system (impairment of reflexes and decrease in excitability of some nerve centers). The changes noted were sharper after the 6th day of the experiment than after the 10th day, an indication of temporary adaptation. The authors conclude that it is relatively safe to breathe gaseous mixtures containing 63% oxygen for a 10 day period. However, the changes appearing on and after the 10th day, especially in the lungs and blood, are the initial signs of the pathological action of oxygen. Orig. art. has: 7 figures.

SUB CODE: 06/

SUBM DATE: 00/

ORIG REF: 043/

OTH REF: 013

Card 2/2 *net*

TROSHIKHIN, V. A.

Ttoshikhin, V. A. "On the problem of the balance of stimulation and inhibition processes in dogs of an excitable type," Trudy fiziol. laboratoriy im. Pavlova, Vol. XIII, 1948, p. 150-53

SO: U-2888, Letopis Zhurnal'nykh Statey, No.1 , 1949

KOLESNIKOV, M.S.; TROSHIKHIN, V.A.

Lower standard of tests for the determination of the higher nervous function in dog. Zh. vysshei nerv. deiat. 1 no. 5:739-743 Sept-Oct 1951. (CJML 23:3)

1. Institute of Physiology imeni I. P. Pavlov of the Academy of Sciences USSR.

ALEKSANYAN, A.M.; TROSHIKHIN, V.A.; FEDOROV, V.K.

Against IU. Konorskii's reactionary criticism of I.P. Pavlov's theories. Izv.AN Arm.SSR.Biol.i sel'khoz.nauki. 4 no.2:107-118 '51.
(MLRA 9:8)

1. Institut fiziologii Akademii nauk Armyanskoy SSR.
(Conditioned response)

KOLESNIKOV, M. S.; TROSHIKHIN, V. A.

Nervous System

Limited standard of tests for the determination of the type of higher nervous activity of a dog. Zhru.vys.nerv.deiat. 1 no. 5, 1951.

9. Monthly List of Russian Accessions, Library of Congress, April 195~~7~~₂, Uncl.

TROSHIKIN, V.A.

Nervous System

Some results of a study of the higher nervous activity in ontogenesis. Zhur. vys.
nerv. deiat. 2, no. 4, 1952.

9. Monthly List of Russian Accessions, Library of Congress, NOVEMBER 1952 ~~1952~~ ~~1952~~ Unclassified.

TROSHIKHIN, V.A.

Certain aspects in the study of the higher nervous function in
otogenesis. Zh. vysshei nerv. deiat. 2 no. 4:561-571 Jul-Aug 1952.
(CML 23:3)

TROSHIKHIN, V.A., zavednyushchiy.

Group study of typological properties of the nervous system in puppies.
Trudy Inst.fiziol. 1:21-28 '52. (MLRA 6:8)

1. Laboratoriya ontogeneza vysshey nervnoy deyatel'nosti.
(Nervous system)

KOBAKOVA, Ye.M.; TROSHIKHIN, V.A., zaveduyushchiy.

Effect of the cerebral cortex upon the motor activity of the small intestine during ontogenesis. Trudy Inst.fiziol. 1:157-155 '52. (MLda 6:8)

1. Laboratoriya ontogeneza vysshey nervnoy deyatel'nosti.
(Brain) (Intestines)

OBRAZTSOVA, G.A.; TROSHIKHIN, V.A., zaveduyushchiy.

Origin and development of conditioned reflex activity in a rabbit during ontogenesis. Trudy Inst.fiziol. 1:166-177 '52. (MLBA 6:8)

1. Laboratoriya ontogeneza vysshey nervnoy deyatel'nosti.
(Conditioned response)